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# **Headquarters U.S. Air Force**

## **Air Force Sustainability Update**



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# Overview

- **Air Force Accomplishments**
- **Challenges**
- **Incremental Steps**
- **Current Approach**
- **Enterprise Solution**
- **Sustainable Communities Rating System**
- **Leadership in Sustainable Communities**



# Air Force Success Stories

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- **Nellis AFB PV System**
  - Largest PV array in N. America
- **EPA Green Power Partnership**
  - Top federal agency for renewable energy (5%)
- **AF MILCON Program**
  - AF Weather Agency – 1<sup>st</sup> LEED Gold in the AF
  - Keesler Housing – Largest LEED community in US homes
- **Natural Resources**
  - Solid Waste Diversion (2007) - 62%
  - HAZWASTE disposal reduction (1996-present) – 33%
  - Toxic Release Inventory reduction (2001-2006) – 34%
  - Ozone Depleting Substance elimination (1990-present) – 96%
  - Water Reduction (FY01-FY07) – 32%
  - Green Remediation Technologies (50% are „green“)



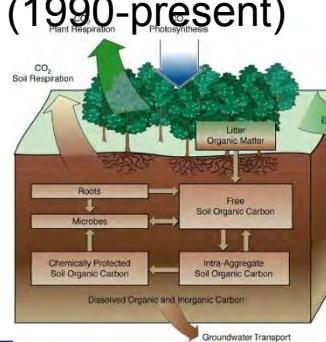
70,000 panels generate 25M KWh per year



AF Weather Agency – 1<sup>st</sup> LEED Gold



Keesler Housing (736 LEED Silver Homes)





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# **Challenges**

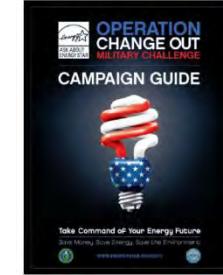
- Easy wins already accomplished
- Individual building approach problematic
- Conflicting regulatory requirements
- Funding stovepipes still exist



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# ***Incremental Steps Toward Sustainability***

- Energy/Green Procurement
  - 100% participation in EnergyStar “Operation Change Out”
- Sustainable Design and Development Policy
- Natural Resources
  - Sustainable Range Operations
    - Engagement on encroachment
    - Range Residue Resource Recycling
  - AF Recycling Program
  - Alternative Fuels Initiative
- Green Remediation
  - Environmental Restoration Program Optimization (ERP-O)
  - Sustainable Remediation Tool



Joint Modular Ground Targets



Solar-powered in situ  
bioreactor, Travis AFB, CA



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# ***Current Approach***

- DoD existing building inventory: ~330,000
  - 15% HPSB by 2015: ~49,500 buildings
- Survey every building
  - 330,000 Buildings
  - Each building survey must incorporate approximately 30-90 data elements
    - Result: **9.9M-30M** data elements
- No single survey in place for all Federal requirements – conflict/duplication



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# ***Enterprise Solution***

- More holistic, comprehensive & synergistic methodology for sustainability
- Utilize an enterprise approach solution which
  - Integrates both the built and natural infrastructure
  - Incorporates sustainable principles in
    - Environmental Management System (EMS) and
    - Asset Management life-cycle planning
  - Facilitates continuous improvement
  - Enables enterprise acquisition
  - Institutionalizes sustainability cultural shift



***“Sustainable Communities”***





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# **Sustainable Communities**

- Tri-Service proposes a Fence-to-Fence rating system
  - LEED-like scorecard
  - 10 categories with requirements & credits under each
  - „CreditSheets“ identify requirements and how to comply
- Based on Asset Management and EMS
  - Each „credit“ mapped to Activity Management Plan
  - Continuous improvement process
- Proposed Categories:

Planning	Built Infrastructure
Energy & Greenhouse Gas Emissions	Transportation
Water Efficiency	Human Health, Development & Productivity
Materials & Waste Management	Community Engagement
Natural Infrastructure	Innovation & Regional



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# ***Leadership in Sustainable Communities (LSC)***

*LSC incorporates the mission, social and environmental impact into the business model.*





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# Conclusion

- Challenges are opportunities to create a paradigm shift
  - Incremental steps towards sustainability are suboptimal
  - Current approach to Federal Mandates – large data burden
- Enterprise Solution: *Sustainable Communities*
  - Triple Bottom Line is incorporated into the structure of Sustainable Communities
  - Next Tri-Service Collaborative Group Sustainable Communities meeting 12 May 2009 – Wash DC



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# ***Related Briefings***

- **Green Remediation:** Wed, 6 May 2009
  - 8259
  - 8050
  - 8046
- **Environmental Program Management:** Wed, 6 May
  - 8047
- **Cleanup 2:** Thurs, 7 May 2009
  - 8079
  - 8103
  - 8349
- **Sustainability:** Thurs, 7 May 2009
  - 8051



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# **Headquarters U.S. Air Force**

## **Questions?**



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## **Backups**



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# **Sustainable Communities**

- 75% of the HPSB requirements are installation wide
- Tri-Service Collaborative Group proposes a single streamlined approach
- USGBC, DOE and EPA in advisory roles
- Fence-to-Fence Tri-Service structured rating system
  - LEED-like scorecard
  - 10 categories with requirements & credits under each
  - „Credit Sheets“ identify requirements and how to comply
- Based on Asset Management and EMS
  - Each „credit“ mapped to Activity Management Plan
  - Continuous improvement process



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## ■ Executive Order (EO) 13423

- Reduce Energy Consumption 30% by 2015
- Reduce Water use 20% by 2015
- Green Procurement
- Hazardous material and waste reductions
- 15% High Performance/Sustainable Buildings by 2015

## ■ Energy Policy Act of 2005 (EPAct05)

- Building shall be 30% more efficient than ASHRAE 90.1
- Use advanced meters

- Energy Independence and Security Act of 2007 (EISA07)

- **Buildings reduce fossil fuel consumption**
  - 55% by 2010; 100% by 2030
- **Restore predevelopment hydrology**





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# ***AF LEED Buildings Honor Roll***



Barksdale Fitness Center  
Bronze 2003



Edwards Consolidated Support  
Silver 2007



Seymour Johnson Crash Rescue  
Certified 2007



Shaw Library - Silver 2008



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# *Sustainable Design and Development*

## **L**eadership in **E**nergy & **E**nvironmental **D**esign



**Does LEED = *Green*?**



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# ***LEED Pitfalls***



## **Charging Station?**



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# What Makes Sense





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# ***LEED Pitfalls***

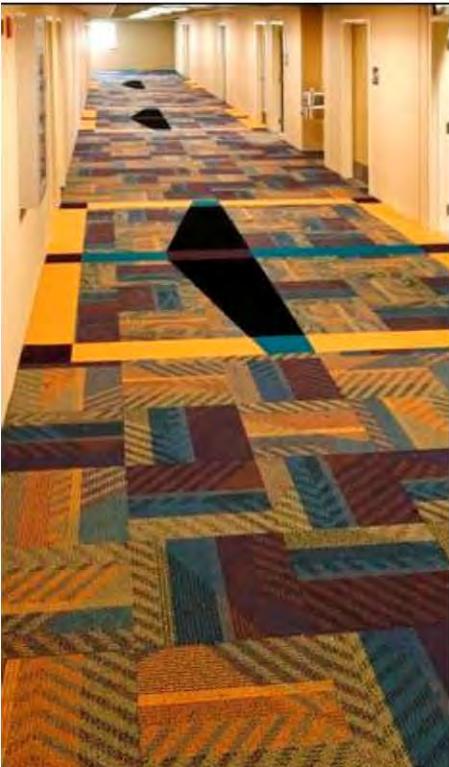


**Match material performance with requirements**



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# Proper Material Selection



## WHAT'S HOT

- WHAT IS SUSTAINABILITY?
- OUR JOURNEY
- SUSTAINABILITY IN ACTION
- COMMUNITY & SOCIAL RESPONSIBILITY
- STAKEHOLDERS & PARTNERS
- NEWS & ANNOUNCEMENTS
- INTERFACERISE

## WHAT'S HOT IN SUSTAINABILITY

### Toward a More Sustainable Way of Business

Business and production in developed is a different world from the one in the Third Party provider, less the initial motivation by nature of social issues, less often an urgent issue, highly sustainable, less relevant, more systematic than less concerned issues, with less to do to the right price to do it, today that system to longer than most our environment, valued, as we are changing it, rather it has been used as part of his system and the collective problem, we begin a journey, the different model, toward sustainability.

The last year or so, I have asked myself, has been a major focus of life, in the way we approach our business and see the world, driven through three stages for a cleaner and less waste, over all living area, it is started by innovation, as a company reimagined and redesigned, over all living area, it includes the most basic ways in which we live life our business. You will see the PARTNER with Xcelerate and advice on our journey, the first stage, the second stage, reduces our energies, the third stage, the interstage, each be a model for business in the next model, a revolution.



## WHAT'S HOT IN SUSTAINABILITY



### Achieving Mission Zero™

In response to a call to action, Xcelerate has joined the Interstage's Mission Zero commitment. Our promise to eliminate any negative impact on the planet by 2050.

### A Model, Vision and Measurement Guide

The Interstage is on a mission for sustainable business, emerged, now that pushes us to journey for the which other businesses can draw inspiration and design their own journeys. As we do, we'll need to work in a model, vision and measurement guide, which will help us to rocket it, to boost the bottom line, "we'll start with core measurements, called Scenarios™, to monitor progress and keep us on our strategy's path. Learn more about the INTERSTAGE of SUSTAINABILITY.





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# ***LEED Pitfalls***



***Essential:* Proper design and maintenance personnel buy-in**

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# ***Another Approach***





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# ***AF LEED Certified Honor Roll***



## **AF Weather Agency**

- LEED Gold
- 41 LEED Points

## **Keesler Housing**

- 736 Homes LEED Silver
- All 1028 EnergyStar Rated
- Largest residential transfer in US



# *Air Force Sustainable Policy for New Facilities*

- Current policy issued July 07
- Key requirements
  - All MILCON vertical facilities shall be *capable of achieving LEED “Silver”*
  - Incorporates EPAct05 and EO 13423 requirements
  - FY09: 5% of total MILCON LEED certified
  - FY10/later: 10% LEED certified
- Policy currently in re-write



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# *Sustainability Requirements for Existing Facilities*

- Current Federal requirement are single facility-based
- Requires multiple surveys to comply with all installation sustainable requirements
- No standard method for reporting

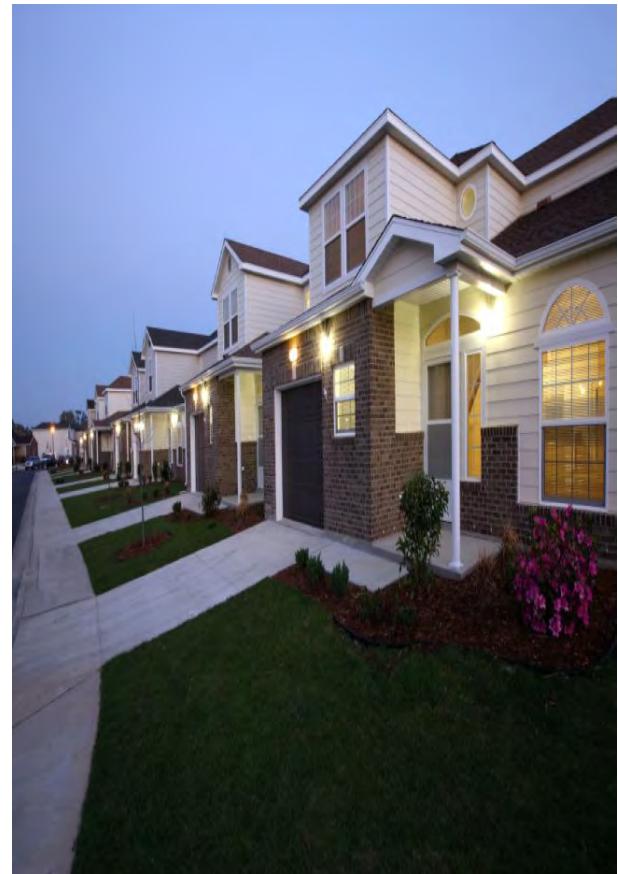




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## Option B: *Sustainable Communities*

- Tri-Service Collaborate Group proposes a single streamlined approach
- USGBC, DOE, and EPA in advisory roles
- Holistic sustainable rating system
  - Includes energy and water requirements
  - Measures/Reports compliance
  - Reflects all aspects of the installation





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## *Option B:* **Sustainable Communities**

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- Installation-wide rating system
  - Reduced data collection
  - Streamline reporting requirements
  - Enable enterprise acquisition strategies
  - Comprehensive & synergistic methodology
  - More holistic methodology for sustainability
  - Facilitate continuous improvement
- Approximately 75% of the HPSB requirements are installation-wide



# Proposed Scorecard Snapshot

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## Sustainable Communities Scorecard

Installation Name:

Location:

Yes   ?   No

	Planning (P)	X Points
Req 1	EMS Conformance	Required
Req 2	Environmental Performance Scorecard	Required
Credit 1	Asset Inventory	
Credit 2	Long Term Environmental Liability Assessment (Air, Land, Restoration)	
Credit 3	Sustainable Investment Planning Process	
Credit 4	Local / Regional Business Support	
Credit 5	Regional Political Coordination Process (around the fenceline)	
Credit 6	Land Use	
Credit 7	Brownfield Development Incentive	
Credit 8	Circulation / Connection	
Credit 9	Light & Air	
Credit 10	Climate Appropriate Design	
Credit 13	Air Installation Compatible Use Zone Program (AICUZ)	
Credit 14	Base Comprehensive Planning	
Credit 15	Development Density	
Credit 16	On-base Housing and Dormitories	
Credit 17	Mixed Use Development	
Credit 18	Facility Utilization and Optimization	



# Proposed Credit Snapshots

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## EMS Conformance

P	EG	WE	MW	NI
BY	T	HDP	CE	IR
Requirement 1				

### Intent

Compliance – must meet federal requirements listed below.

### Requirements

- Federal Requirement:
  - EO13423, (-)
  - DODI xxxx.xx
- Service Requirements
  - Army:
  - Navy:
  - Air Force: AFI XX-XXXX

### Submittals Documentation

The submittals will be a list of specific data that should be gathered into a database.

\*The intention is that this reference workbook will be used as a scope document for a database designer. The designer will create a database and a web based tool for filling in the information required by the submittals. They do not want yes/no questions and checkmarks. They want for real data to be entered, such as quantities, percentages, etc.

### Potential Technologies & Strategies

Not completing this section until after the Tri Service meeting in May

#### Asset Management Key:

Army:	Navy:	Air Force: NI
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## GHG Emissions Benchmark and Tracking

P	EG	WE	MW	NI
BY	T	HDP	CE	IR
Requirement 1				

### Intent

Compliance – must meet federal requirements listed below.

### Requirements

- Federal Requirement:
  - EO13423, (-)
  - DODI xxxx.xx
- Service Requirements
  - Army:
  - Navy:
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#### Asset Management Key:

Army:	Navy:	Air Force: NI
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# *Way Ahead*

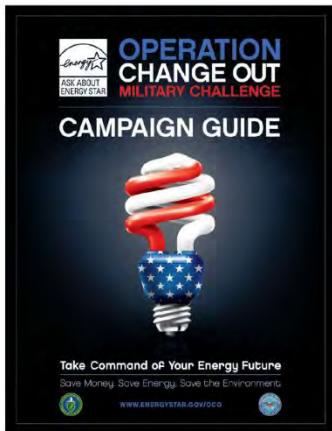
- **Define credits and requirements**
  - Reduce data acquisition
  - Streamline reporting requirements
- **Identify a scoring methodology**
- **Develop business strategy**
  - Tie score to investment strategies
  - Prioritize projects considering triple bottom line
  - Complements Asset Management approach



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- 100% participation in EnergyStar “Operation Change Out”





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# ***Renewable Energy***

- **Air Force leads renewable energy initiative**
  - **Largest PV system in N. America**
    - Nellis AFB
  - **Purchasing renewable energy**
    - Rated top federal agency
    - Rated #8 nationally – over 426M KWh
  - **Installations pursuing local renewable resources**
    - Dyess AFB – 100% wind power
    - Fairchild AFB – 100% green power
    - Edwards AFB – 60% green power
    - Ascension Island – x% wind power
  - **100% participation in EnergyStar „Operation Change Out“**



70,000 panels generate 25M KWh per year



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# ***Going “Green”***

## ■ **“Green Remediation”**

- **Focus on working with and leveraging Mother Nature**
- **50% of current remediation systems are “green”**
  - Phytoremediation – utilizing tree root structure to remediate
  - Bioaugmentation – groundwater stimulation of dechlorination
  - Wetlands & Biowalls
  - Solar Powered Systems

## ■ **Kevin Section**